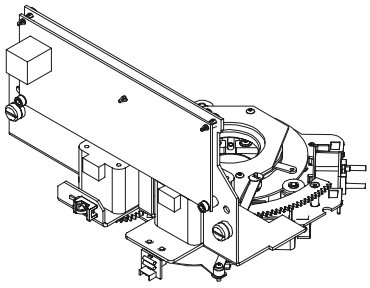
x.Spot™ Addendum: Framing/Iris Module

The Framing/Iris module is an optional accessory for the x.Spot fixture that provides accurate and repeatable beam shape control on walls and stage elements. It replaces the Rotating Gobo/Iris module in Slot 3 of a standard configuration x.Spot fixture.

Figure 1 Framing/Iris Module



This Addendum includes instructions for:

- Installing the Framing Module
- Reassembling the modules into standard fixture configuration
- Operating the fixture with the Framing/Iris module

Refer to the **x.Spot User Manual** (p/n 60600174) for additional safety, compliance, warranty, and maintenance information, and all other x.Spot features and operation.

The Framing/Iris Module features:

- Independent position and angle control on each of four blades.
- ±45-degree frame rotation
- A Variable Iris

Verifying and Uploading Fixture Software

The x.Spot fixture must be running the latest version of software (3.0.0 or greater) to ensure the fixture automatically recognizes the Framing/Iris module and modifies the DMX protocol. The latest software for x.Spot fixtures is available in the support section of the High End Systems® web site (www.highend.com). See Chapter 2 of the **x.Spot User Manual** for directions on uploading the latest software to the fixture.

Installation

Installing the Framing/Iris Module

Warnings: Disconnect power before servicing.

This fixture must be serviced by qualified personnel. Information listed in this chapter is intended to assist qualified personnel *only*.

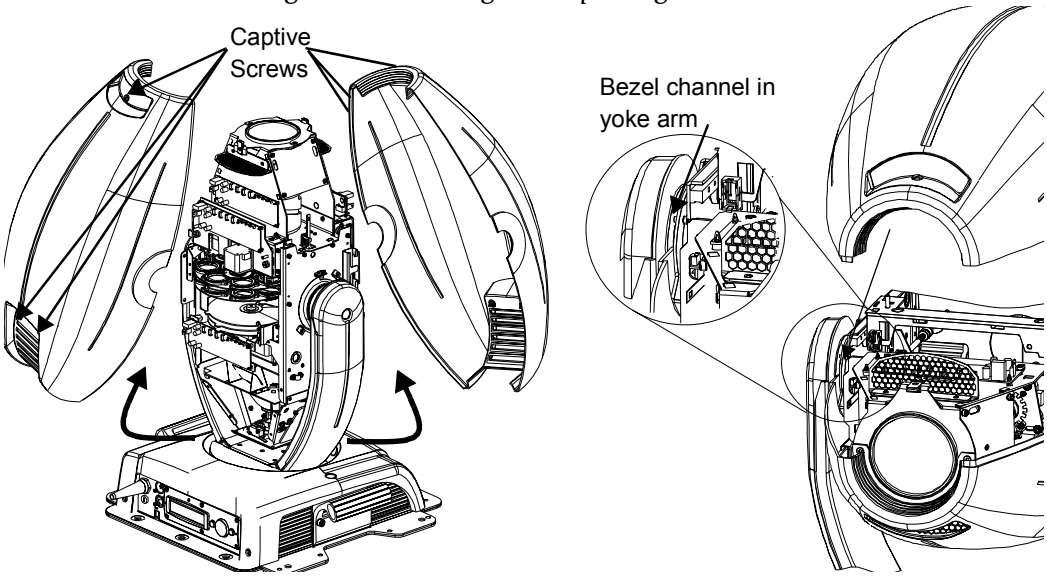
Equipment surfaces may reach temperatures up to 130°C (266°F). Allow the fixture to cool before handling.

Open the Fixture:

1. Remove the bezel by loosening the three (3) captive screws on each side of the fixture head with a flathead screwdriver. Lift the bezel sides away from the base and toward the lens (see Figure 2).

   When replacing the bezel, ensure that it is fitted securely in the yoke channel on both side of the fixture as shown in Figure 2.

Figure 2 Removing and replacing the bezel

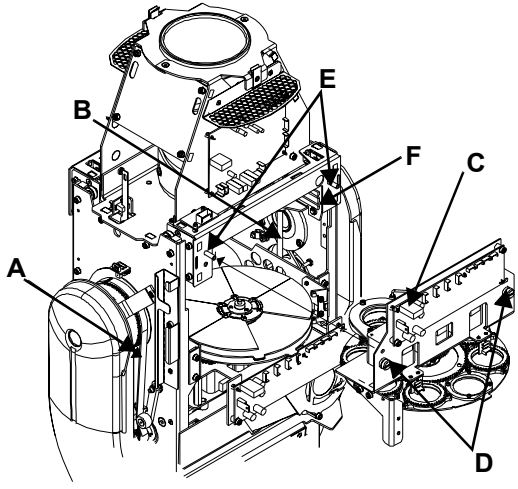


Remove the Slot 3 Gobo/Iris Module

(Refer to Figure 3 for Steps 2–4).

2. With the lens pointed up, rotate the fixture so the tilt belt **(A)** is on your left. Locate the Rotating Gobo and Iris Module in Slot 3 (closest to the lens) and gently move the module toward the lens until the linear slide **(B)** reaches its limit.
3. Detach the IDC connector **(C)** from the Slot 3 module's driver board.
4. Loosen the two captive screws **(D)** on the Rotating Gobo and Iris module and pull it straight out of the unit.

Figure 3 Removing Slot 3 Module.



Reconfigure the Slot 2 Dual Rotating Gobo Module.

5. Detach the IDC connector (**C** in Figure 4) from the Dual Rotating Gobos Module driver board.
6. Loosen the two captive screws on the module (**D** in Figure 4) and pull it straight out of the unit.
7. Referring to Figure 5 for Steps 7–12, use a 2mm (1/64in.) allen wrench to loosen the set screw on the Gobo 1 wheel. Lift it, and the washer below it off the hub.
8. Loosen set screw and remove 90-tooth gear and the washer below it from shaft. Retain to reinstall.
9. Without loosening the set screw, lift the Effects wheel assembly, attached gears, and the washer below it off the hub.
10. Loosen the set screw and remove the drive gear with a stepped sensor tab.
11. Reposition the 90-tooth gear on shaft aligning the top of the gear hub with the outer shaft. Tighten set screw and place washer on shaft over gear.
12. Replace Gobo 1 on shaft and tighten set screw.

Figure 4 Removing Slot 2 Module.

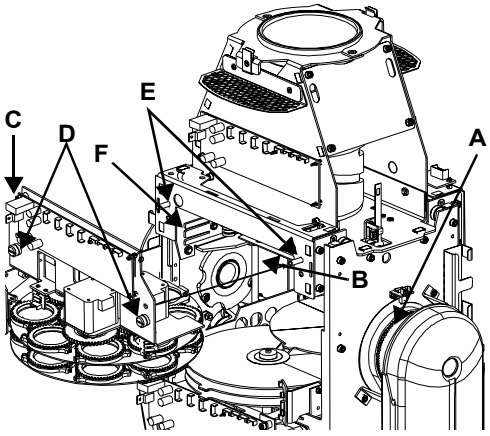
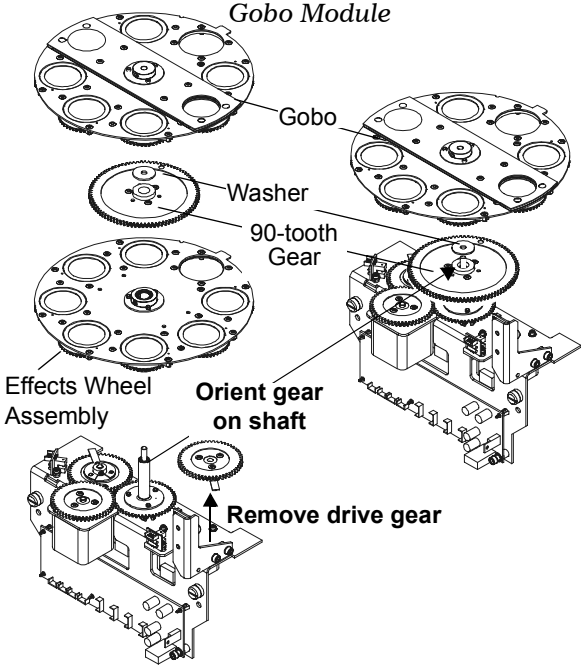


Figure 5 Reconfiguring Dual Rotating Gobo Module



Install the Module

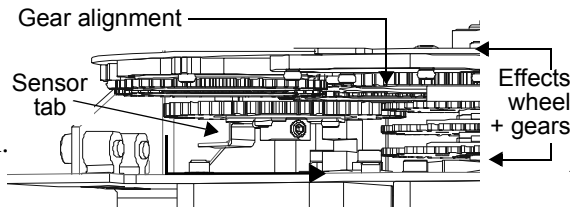
13. Referring to Figure 4, slide the reconfigured Rotation Gobo module back into the slot 2 position using aligning pins (**E**) and channel guides (**F**) to orient it. Tighten the captive screws (**D**) and reattach IDC connector (**C**).
14. Referring to Figure 3 on page 2, slide the assembled Framing/Iris module into the slot 3 position using aligning pins (**E**) and channel guides (**F**) to orient it. Tighten the captive screws (**D**) and reattach IDC connector (**C**).
15. Reattach the bezel guiding it into the bezel channel on each yoke arm and retighten captive bezel screws as shown in Figure 2 on page 2.
16. Connect the fixture to power. The fixture will automatically home.

Returning Fixture to Standard Configuration

To restore the x.Spot fixture to standard configuration:

1. Follow Steps 1-6 in the preceding section to remove Slots 2 and 3 modules.
2. Referring to Figure 5, use a 2mm (1/64in.) allen wrench to loosen the set screw on the Gobo 1 wheel. Lift it and the washer below it off the hub.
3. Loosen set screw and remove 90-tooth gear and the washer below it from shaft.
4. Reinstall the saved drive gear on the plate. Do not tighten set screw.
5. After moving sensor tab outside of path, replace washer and effects wheel assembly with attached gears on shaft.
6. Raise the drive gear up and align with the first gear under the effects wheel. Ensure that the sensor tab moves freely and tighten the set screw, (see Figure 6).
7. Replace washer and 90-tooth gear on shaft and tighten set screw.
8. Replace Gobo 1 wheel and tighten set screw.
9. Go to section “Install the Module” on page 5-3 to complete installation.

Figure 6 Drive Gear Alignment



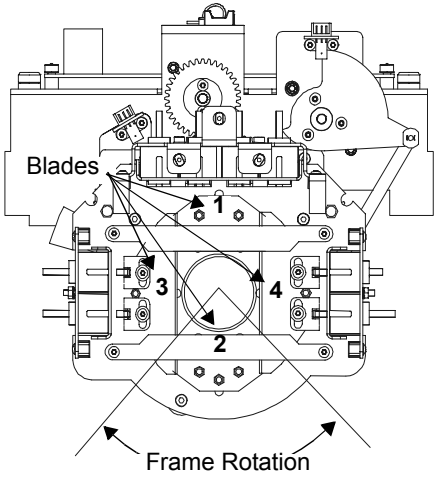
Module Operation

The fixture automatically recognizes the Framing/Iris module when it homes and adjusts the menu system settings to Framing/Iris parameters. For information on operating the fixture with the onboard menu system, see Chapter 3 of the *x.Spot User Manua*). Chapter 4 of the **x.Spot User Manual** contains parameter descriptions for use with a DMX controller. Channels 1-22 parameters remain the same in this configuration of the fixture (see Appendix A of the **x.Spot User Manual**). The remainder of this addendum describes DMX parameters and channel assignments specific to the Framing/Iris module.

Parameter Descriptions

The following descriptions assume the module is in the homed position and viewed as shown in Figure 7. Blade numbering also reflects this orientation. Blade position and angle ranges are the same for opposite blades.

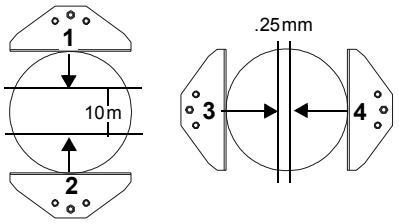
Figure 7 Module Orientation



Blade Position Parameters

Framing protocol Channels 28, 30, 32, and 34 independently control blade movement in and out of the light beam (see Figure 8 on page 5). Blades 1 and 2 close to a minimum gap of 10mm(.4in); blades 2 and 4 to .25mm(.01in). A DMX value of 0 sets a blade to its maximum beam coverage.

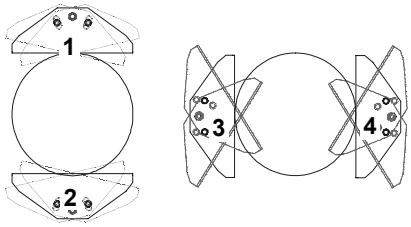
Figure 8 Blade Positioning



Blade Angle Parameters

Framing protocol Channels 29, 31, 33, and 35 independently control Blade angle. Blades 1 and 2 have a maximum potential angle range of ±14°. Blades 3 and 4 have a maximum potential angle range of ±32° (see Figure 9). The potential angle range will be affected by the position parameter setting for that blade.

Figure 9 Blade Angles



Frame Rotate

Framing protocol Channel 36 controls the Module frame rotation with a maximum range of ±45° as shown in Figure 7 on page 4.

Iris

Iris is a continuous parameter controlled by DMX Channel 37. The iris utilizes a variable circular opening to control the beam diameter. See Table 1 for Iris settings.

Note: The range of iris movement is greater with the Framing/Iris module than for a standard configuration x.Spot fixture.

Table 1 Iris Setting Descriptions

Iris Setting	Description
Close	Closes the iris.
Variable Iris	Determines the diameter of the beam.
Open	Fully opens the iris.
Periodic Strobe (Variable)	Strobes the beam diameter at specified intervals.
Random Strobe (Variable)	Strobes the beam diameter at random intervals.
Ramp Open/Snap Shut (Variable)	Fully opens the iris at variable speeds, then snaps shut at full speed.
Snap Open/Ramp Shut (Variable)	Fully opens the iris at full speed, then ramps shut at variable speeds.
Ramp Open/Ramp Shut (Variable)	Fully opens the iris at variable speeds, then shuts at the same speed.
Random Ramp/Snap (Variable)	Fully opens the iris at variable, random speeds, then snaps shut at full speed.
Random Snap/Ramp (Variable)	Fully opens the iris at full speed, then ramps shut at variable, random speeds.

Framing/Iris Module DMX Protocol

An x.Spot fixture configured with a Framing/Iris Module requires a 37 DMX Channel range instead of the 38 Channel range of a standard configuration x.Spot fixture. Table 1 shows DMX protocol specific to the Framing Module and reflects the reduction in DMX channel requirements.

Use this protocol to replace channels 23–38 of a standard configuration x.Spot fixture. All other Channel parameters remain the same as the standard configuration, (see Appendix A of the **x.Spot User Manual**).

Table 1 Framing Module DMX Protocol

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
SLOT 2/3: FRAMING AND IRIS MODULE					
23	Gobo1 Function	***Full Speed Control***			
		Indexed	0 - 15	0-6	0-0F
		Forward Wheel Spin	16-31	6-12	10-1F
		Reverse Wheel Spin	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Random	64-79	25-31	40-4F
		Blink	80-95	31-37	50-5F
		TBC	96-111	38-44	60-6F
		Continuous	112-127	44-50	70-7F
		MSpeed Control			
		Indexed	128-143	50-56	80-8F
		Forward Wheel Spin	144-159	57-62	90-9F
		Reverse Wheel Spin	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Random	192-207	75-81	C0-CF
		Blink	208-223	82-88	D0-DF
		TBC	224-239	88-94	E0-EF
		Continuous	240-255	94-100	F0-FF
24	Gobo 1 Position	***Indexed /Blink/Scan Modes***			
		Position 1 (Open)	0-15	0-6	0-0F
		Position 2	16-47	6-18	10-2F
		Position 3	48-79	19-31	30-4F
		Position 4	80-111	31-44	50-6F
		Position 5	112-143	44-56	70-8F
		Position 6	144-175	57-69	90-AF
		Position 7	176-207	69-81	B0-CF
		Position 8	208-239	82-94	D0-EF
		Position 1 (Open)	240-255	94-100	F0-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
24	Gobo 1 Position, cont.	***Spin Mode***			
		Spin Stop	0-3	0-1	0-3
		Spin Forward Slowest to Fastest	4-255	2-100	4-FF
		Spin Reverse Slowest to Fastest	4-255	2-100	4-FF
		Random Mode			
		Random Stop	0-3	0-1	0-3
		Random Slowest to Fastest	4-255	2-100	4-FF
		Continuous Mode			
		Positioning from 1-360 degrees	0-255	100	FF
25	Gobo 1 Rotate Function	***Full Speed Control***			
		Indexed	0-15	0-6	0-0F
		Forward Rotate	16-31	6-12	10-1F
		Reverse Rotate	32-47	13-18	20-2F
		Scan	48-63	19-25	30-3F
		Blink	64-79	25-31	40-4F
		Reserved	80-95	31-37	50-5F
		Reserved	96-111	38-44	60-6F
		Reserved	112-127	44-50	70-7F
		MSpeed Control			
		Indexed	128-143	50-56	80-8F
		Forward Rotate	144-159	57-62	90-9F
		Reverse Rotate	160-175	63-69	A0-AF
		Scan	176-191	69-75	B0-BF
		Blink	192-207	75-81	C0-CF
		Reserved	208-223	82-88	D0-DF
		Reserved	224-239	88-94	E0-EF
		Reserved	240-255	94-100	F0-FF
26	Gobo 1 Rotate Coarse	***Indexed /Scan/Blink Modes***			
		Position 0-360 degrees	0-255	0-100	0-FF
		Rotate Mode			
		Rotate Stop	0-3	0-1	0-3
		Forward Rotate Slowest to Fastest	4-255	2-100	4-FF
		Reverse Rotate Slowest to Fastest	4-255	2-100	4-FF
		Scan Mode			
		Scan Slowest to Fastest	0-255	0-100	0-FF
27	Gobo 1 Rotate Fine	***Indexed Mode***			
		Low Order Byte 0-360 degrees	0-255	0-100	0-FF
28	Blade 1 Position	Adjusts blade position from maximum beam coverage to full out (open)	0-255	0-100	0-FF
29	Blade 1 Angle	Blade Angle Negative from –14° to –1°	0-127	1-49	01-7F
		Blade Angle 0 degrees	128	50	80
		Blade Angle Positive from +1° to +14°	129-255	51-100	81-FF

Chan #	Parameter	Description	Value (dec.)	Value (%)	Value (hex)
30	**Blade 2 Position**	Adjusts blade position from maximum beam coverage to full out (open)	0-255	0-100	0-FF
31	**Blade 2 Angle**	Blade Angle Negative from –14° to –1°	0-127	1-49	01-7F
		Blade Angle 0 degrees	128	50	80
		Blade Angle Positive from +1° to +14°	129-255	51-100	81-FF
32	**Blade 3 Position**	Adjusts blade position from maximum beam coverage to full out (open)	0-255	0-100	0-FF
33	**Blade 3 Angle**	Blade Angle Negative from –32° to –1°	0-127	1-49	01-7F
		Blade Angle 0 degrees	128	50	80
		Blade Angle Positive from +1° to +32°	129-255	51-100	81-FF
34	**Blade 4 Position**	Adjusts blade position from maximum beam coverage to full out (open)	0-255	0-100	0-FF
35	**Blade 4 Angle**	Blade Angle Negative from –32° to –1°	0-127	1-49	01-7F
		Blade Angle 0 degrees	128	50	80
		Blade Angle Positive from +1° to +32°	129-255	51-100	81-FF
36	**Frame Rotate**	Frame rotation from –45° to 1°	0-127	1-49	01-7F
		Frame rotation = 0	128	50	80
		Frame rotation from +1° to +45	129-255	51-100	81-FF
37	**Iris**	Closed	0	0	0
		Variable Iris	1-127	1-50	01-7F
		Open	128-135	50-53	80-87
		Periodic Strobe (Variable)	136-151	53-59	88-97
		Random Strobe (Variable)	152-167	60-66	98-A7
		Ramp Open/Snap Shut (Variable)	168-183	66-72	A8-B7
		Snap Open/Ramp Shut (Variable)	184-199	72-78	B8-C7
		Ramp Open/Ramp Shut (Variable)	200-215	78-84	C8-D7
		Random Ramp/Snap (Variable)	216-231	85-91	D8-E7
		Random Snap/Ramp (Variable)	232-247	91-97	E8-F7
		Open	248-255	97-100	F8-FF

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